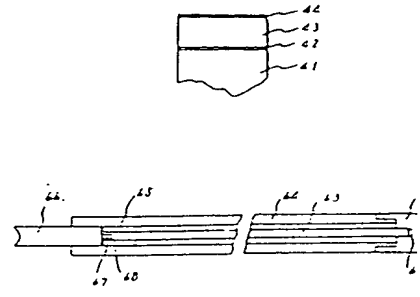


BEST AVAILABLE COPY

(54) OPTICAL TEMPERATURE DETECTING ELEMENT  
 (11) 60-14135 (A) (43) 24.1.1985 (19) JP  
 (21) Appl. No. 58-121662 (22) 6.7.1983  
 (71) KOGYO GIJUTSUIN (JAPAN) (72) YOUICHI SHINDOU(1)  
 (51) Int. Cl. G01K11.12

**PURPOSE:** To make measurement of a high temperature higher than 500°C possible and reduce the variance among individual elements, by using a solid-state etalon, which is produced with a production method suitable for production of a very thin solid-state etalon, as a thermosensitive optical element.

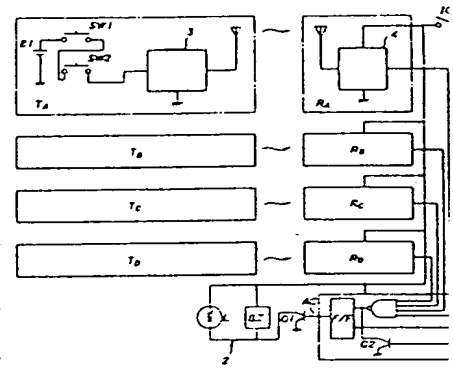
**CONSTITUTION:** Thin films having three-layered structure of a partially reflective film 42, an etalon medium film 43, and a surface partially reflective film 44 are formed in this order on the surface of a substrate 41 having an optically smooth surface. An optical waveguide 63 leads light, which is emitted from an optical fiber 66, to a thin film etalon 61 and leads the reflected light from the thin film etalon 61 to the optical fiber 66. The light is made incident vertically to the surface of the film 61 from the direction of the film 44 and is multireflected between films 42 and 44 and becomes an intensity-modulated signal light by a change of the  $n/$  (refractive index and thickness) product of the etalon medium film due to temperature and is reflected from the thin film etalon 61. This intensity change is detected to detect the temperature.



(54) SYSTEM FOR DETECTING ABNORMAL PRESSURE OF TIRE  
 (11) 60-14136 (A) (43) 24.1.1985 (19) JP  
 (21) Appl. No. 58-122088 (22) 5.7.1983  
 (71) HONDA GIKEN KOGYO K.K. (72) KATSUMITSU KURIHARA(1)  
 (51) Int. Cl. G01L17/00, G01D3/00

**PURPOSE:** To inform a driver whether a system is operated normally or not, by providing a transmission unit to which a battery is connected through a switch, which closes the contact in accordance with the rotation of a tire, and a switch which opens the contact when the air pressure of the tire is lowered.

**CONSTITUTION:** Individual tires incorporate transmission units  $T_A \sim T_D$  respectively, and reception units  $R_A \sim R_D$  are provided on the outside of tires. In a judging circuit 1, the presence or the absence of occurrence of abnormality of each tire pressure is detected while diagnosing whether the system is operated normally or not on a basis of respective output state of reception units; and an alarm is raised by an alarm circuit 2. Each of transmission units  $T_A \sim T_D$  consists of a tire rotation switch SW1 which closes the contact during the rotation of the tire, a tire pressure switch SW2 which opens the contact if the air pressure of the tire becomes lower than a prescribed value, and a transmitter 3. When contacts of switches SW1 and SW2 are closed, a battery B1 is connected to the transmitter, and weak radio waves are transmitted from an antenna.



4: receiver

(54) ORIENTATING SYSTEM OF BREAK POINT OF OPTICAL FIBER  
 (11) 60-14137 (A) (43) 24.1.1985 (19) JP  
 (21) Appl. No. 58-122124 (22) 5.7.1983  
 (71) NIPPON DENKI K.K. (72) KAZUMASA TSUKADA  
 (51) Int. Cl. G01M11.00

**PURPOSE:** To orientate surely a break point of an optical fiber by propagating two kinds of light, which have wavelengths different in transmission speed, in the optical fiber and detecting a difference between points of time of breaks of these two kinds of light which is caused by a break of the optical fiber.

**CONSTITUTION:** Light sources 1 and 2 generate continuous light having wavelengths  $\lambda_1$  and  $\lambda_2$ , respectively. These wavelengths  $\lambda_1$  and  $\lambda_2$  are different in transmission delay time per unit length in an optical fiber 100. These two kinds of light are synthesized by an optical coupler 3 and are transmitted to the optical fiber 100. Two kinds of light propagated in the optical fiber 100 are separated to optical components having wavelengths  $\lambda_1$  and  $\lambda_2$  by a wavelength separator 4, and they are converted to electric signals 51 and 61 by photoelectric transducers 5 and 6. Electric signals 51 and 61 are inputted to a time difference detector 7, and a time difference signal 71 is outputted if a break occurs.

